line 4, before the period (.) insert --, now abandoned--.

IN THE CLAIMS:

Cancel claims 1-3, 7, 12, 13 and 17-26.

Add the following additional claims:

a2

27. An upflow filter including a chamber having a filter bed therein, said filter bed including a non-buoyant particulate media filter layer; a liquid inlet conduit opening into said chamber in a region below the filter bed; an air inlet conduit opening into said chamber below said filter bed; means for directing liquid influent through the liquid inlet conduit and air through the air inlet conduit into the chamber below the filter bed with the velocity of the liquid influent being less than the minimum fluidization velocity of the filter layer for disrupting only some floc retained in said layer during a previous service run, while leaving some floc attached to said particulate media in said filter layer; and means for thereafter directing only liquid through the liquid inlet conduit in an upflow direction through the filter bed at a velocity less than the minimum fluidization velocity of the filter layer for removing disrupted floc from the filter while leaving in said filter layer floc attached to said particulate media of said filter layer.

28. The upflow filter of claim 27 wherein said liquid inlet conduit and said air inlet conduit are separate conduits.

29. The upflow filter of claim 28 wherein said filter bed further includes a static flocculation layer of particulate, non-buoyant material that is coarser than the material of said filter layer and is disposed upstream of said filter layer, in the direction of liquid flow through the filter bed, said particulate, non-buoyant material of said flocculation layer having particles of an effective size and uniformity coefficient for distributing the upward flow of influent during service runs and providing a velocity gradient for mixing said influent to promote flocculation without retaining substantial portions of floc in said flocculation layer.

30. The upflow filter of claim 29 wherein the depth of said flocculation layer is less than the depth of said filter layer.

31. The upflow filter of claim 27 wherein the particulate material of the filter layer has an effective size greater than one (1) millimeter.

32. The upflow filter of claim 29 wherein said filter bed includes a transitional layer of particulate material between the flocculation layer and the filter layer, said flocculation layer being formed of a particulate material which is coarser than the particulate material of the transitional layer.

33. The upflow filter of claim 32 wherein the effective size of the particles in the flocculation layer is no greater than 6.5 millimeters, and the effective size of the

particles in the transitional layer is approximately 2.5-3.5 millimeters.

34. The upflow filter of claim 27 wherein the particulate media of the filter layer has a specific gravity in excess of 2 and an effective particle size greater than 1 millimeter.

35. The upflow filter of claim 29 wherein the particulate media of the flocculation layer and the filter layer have specific gravities greater than 2.

36. The upflow filter of claim 35 wherein the particles of the flocculation layer have an effective size greater than 4 millimeters.

37. In a system for clarifying water having an upflow filter including a first chamber with a first filter bed therein, and a downflow filter including a second chamber adjacent to and downstream of the first chamber and having a second filter bed therein, said first chamber including an inlet to admit a liquid influent stream to be filtered to pass upwardly through said first filter bed and then sequentially pass downwardly through said second filter bed during service runs of said system, and backwash means for each of said first and second chambers for purging accumulated solids from the filter bed contained in each of the first and second chambers, the improvement comprising:

said first filter bed including a filter layer having solid particles with a specific gravity greater

than 2 and an effective particle size greater than 1 millimeter; and

a liquid inlet conduit opening into the first chamber in a region below the first filter bed;

an air inlet conduit opening into the first chamber in a region below the first filter bed;

said backwashing means for purging accumulated solids from the first filter bed in the first chamber including means for simultaneously directing liquid through the liquid inlet conduit and air through the air inlet conduit into the first chamber below the first filter bed therein, with the velocity of the liquid being less than the minimum fluidization velocity of the filter layer, and with the air flow rate being in the range of approximately 1-9 Scfm/ft.$^2$.

38. The system of claim 37 wherein the first filter bed in the first chamber includes a filter layer having solid particles with a specific gravity in excess of 2.5 and an effective particle size of at least 1.7 millimeters.

39. The system of claim 37 wherein liquid influent to be filtered is directed through the liquid inlet conduit during both filtering through the upflow filter during service runs and backwashing the upflow filter.

40. The system of claim 39 wherein the first filter bed in the first chamber includes a filter layer having solid

particles with a specific gravity in excess of 2.5 and an effective particle size of at least 1.7 millimeter.

41. The system of claim 37 wherein the means for directing liquid through the liquid inlet conduit into the first chamber directs said liquid at a velocity in the range of approximately 5-20 gallons per minute/ft.$^2$

42. The system of claim 41 wherein the first filter bed in the first chamber includes a filter layer having solid particles with a specific gravity in excess of 2.5 and an effective particle size of at least 1.7 millimeters.

43. The system of claim 41 wherein liquid influent to be filtered is directed through the liquid inlet conduit during both filtering through the upflow filter during service runs and backwashing the upflow filter.

44. In a method for clarifying water in a filter system wherein during a filtering mode step influent water is passed upwardly in a first zone through first particulate filter media contained therein and then sequentially is passed downward through a second zone through second particulate filter media contained therein, and during a backwash mode step liquid is passed upwardly through said particulate filter media in both said first and second zones, the improvement which comprises:

providing said first particulate media with a filter layer in the form of solid particles having a specific gravity in excess of 2 and an effective size greater than 1 millimeter; and

during backwashing of said first zone, causing a combination of air and liquid to flow upwardly through the filter layer with the liquid flow rate being less than the minimum fluidization velocity of the filter layer and with the air flow rate being in the range of approximately 1-9 Scfm/ft.$^2$

45. The method of claim 44 wherein the liquid directed in an upflow direction during backwashing is the influent liquid directed through the filter layer during the filtering mode step.

46. The method of claim 45 wherein the influent liquid directed upwardly through the filter layer in the first zone during the filtering mode step is at substantially the same velocity as that of the influent liquid directed upwardly with the air through the filter layer during backwashing.

47. The method of claim 44 wherein the velocity of the liquid flowing upwardly through the filter layer during backwashing is less than 1/2 the minimum fluidization velocity of the filter layer.

48. The method of claim 44 wherein the step of directing liquid and air upwardly through the filter layer during backwashing is carried out for a period of less than five (5) minutes.

49. The method of claim 44 including the step of providing the particulate filter layer in the form of solid particles having a specific gravity in excess of 2.5 and an effective size of at least 1.7 millimeters.